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ABSTRACT

This study investigated the effectiveness of an approach to teaching an advanced research class by comparing test scores of male and female students on a test of research fundamentals before and after the course. Four classes, between 2001 and 2003, all taught by the same instructor, incorporated article critiques (based on an instrument from V. Wilson and A. Ongwuegbuzie), a critique-based examination, and an oral presentation of a grant application completed by the student. There was complete information for 51 students, 31 females and 20 males. A 30-item posttest yielded a Cronbach's alpha of 0.63. Since there were no initial differences in the pretest scores as to sex, a two-sample t-test was run on the posttest scores. The assumptions of normality and homoscedasticity were verified by the Omnibus Normality of Residuals and Modified-Levene Equal-Variance tests, but random selection was not possible since students are not randomly assigned to classes. The t-test indicated that the null hypothesis of no statistical significant difference between the mean pretest and posttest scores could not be rejected at the 0.05 level (t=0.0079, p=0.99). The effect size, d=0.05, was negligible. The Mann-Whitney U-test agreed. Results indicate that there was no practical difference in the test scores in the classes, suggesting no particular performance differences between males and females. Two-sample test reports are attached. (Contains 17 references.) (Author/SLD)

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Graduate Research Class Performance by Gender

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Graduate Research Class Performance by Gender

Abstract

This study investigated the effectiveness of an approach to teaching an advanced research class by comparing male and female students' test scores on a test of research fundamentals before and after the course. The four classes that were the focus of this study were offered in the fall 2001, spring and fall 2002, and spring 2003 terms under the same instructor. All sections incorporated article critiques (based on an instrument from Wilson and Onwuegbuzie), a critique-based exam, and an oral presentation of a grant application completed by the student. The purpose of the critiques and grant application were to provide the students with opportunities to apply in some depth the research knowledge they had acquired from their basic research courses. There were 51 participants for whom there was complete information, comprising 31 females (61%) and 20 males (39%). Multiple-choice pretests and posttests on fundamental research topics were given. A thirty-item posttest yielded a Cronbach's alpha of 0.63. Since there were no initial differences in the pretest scores as to sex, a two-sample t-test was run on the posttest scores. The assumptions of normality and homoscedasticity were verified by the Omnibus Normality of Residuals and Modified-Levene Equal-Variance tests, but random selection was not possible since students are not randomly assigned to classes. The t-test indicated that the null hypothesis of no statistically significant difference between the mean pretest and posttest scores could not be rejected at the 0.05 level ($t=0.0079$, $p=0.99$). The effect size, $d=0.002$, was negligible (Cohen). The Mann-Whitney U test agreed ($Z=0.53$, $p=0.60$). It is concluded, then, that there were no practical differences in the test scores in these graduate research classes suggesting no particular performance differences between males and females.

Graduate Research Class Performance by Gender

There has been little systematic research concerning gender differences in adult learning (Richardson and King, 1991). In reviewing the literature on differences between men and women with regard to their higher education experiences, Richardson and King found general agreement that although students take different approaches to learning, there is little evidence for gender differences in these approaches. This paper investigated evidence for gender differences in higher education, specifically in a graduate research class.

Strategies for teaching research vary widely (Campbell, 2000; Jackson and Wolski, 2001; Pors, 2000; Porter, 2001). Among the approaches are a host of methods, used for a variety of courses. For example, Hitchcock and Murphy (1999) included nursing students in a faculty research study to teach undergraduate research through having the students participate as research subjects, data collectors, and consumers of research. Course evaluations and student comments indicated that the project helped develop positive attitudes and increased the students' comfort level with research.

Gieselman, Stark, & Farruggia (2000) recommended situated learning theory to expose nurses having little research experience to this topic. Following this theory, both the learner and the teacher are actively involved in instruction with each taking some responsibility for tasks. The learner determines what is meaningful, how it is to be understood, and how it is to be incorporated into what is already known. The instructor plays a supportive, rather than direct, role in learning.

Upchurch, Brosnan, & Grimes (2002) taught synthesis of the research literature to advanced-practice nurses to help them find meaning in the research. Most of the student nurses reported that the strategies helped them integrate their research and clinical practice, showed them how to find and evaluate research, and promoted

their independence and critical thinking. By the end of the process, they were able to create and maintain a bibliographic database, prepare a computer graphics presentation, and document their research findings in a standard format. Although a few students reported some frustration and ambiguity, in general, they rated the courses and faculty as above average to excellent, and recommended the courses to their peers.

Kern (2001) used an investigative laboratory instruction project to teach research to undergraduate nutrition students. While more costly than non-investigative laboratory instruction, the method was effective for teaching scientific concepts to college students. Benefits included greater familiarity with experimental design and implementation, greater curiosity about the topic, enhanced student commitment to the course, better student collaboration and interaction, and more, well-developed critical thinking skills.

Although these studies were based in health-related fields, there are other fields in which research methods are a topic of interest. For example, Kessler and Swatt (2001) applied mastery learning to the teaching of criminal justice research methods. Students rewrote exercises until they obtained perfect scores. The authors found that the better the students performed on the exercises, the more they improved from the pretest to the posttest (the final). The more the students rewrote their assignments, the better they did on the final, as well. As little as one or two rewrites maximized their improvement. The approach is more time consuming than a more traditional one, but was beneficial for struggling students.

Sever (2001) noted the difficulty of teaching research methods, in particular, within the graduate criminal justice curriculum. He studied 11 current criminal justice research methods textbooks and surveyed 36 graduate criminal justice instructors and their classes. The texts and the teachers emphasized quantitative methods, but the texts focused more on

qualitative methods than did the instructors. Both tended to neglect critical areas including grant proposal writing, article writing and critiquing, and standards for collaborative research efforts. Sever recommended that research methods should be included in the lectures and textbooks of other criminal justice classes to help bridge the gap between theory and application.

Lanier (2002) outlined a model that involved criminal justice students with data collection, analysis, and computer programs. He illustrated the process with a case study based on his Spring 1999 graduate course in quantitative methods and computer usage. He noted that the ultimate measure of success was how much the students actually learned, perhaps best demonstrated by the students who continued working with the data. They were able to use the strategies and software to contribute to the criminological knowledge base. Success was further illustrated by the students' excitement as they collected their own data and studied something that could make a difference.

Another area in which research methods has played an important role is that of communications. For example, Keyton (2001) suggested service-learning as a pedagogical approach to teaching research methods. The model incorporates experiential learning, applied research, and a joint service-learning commitment between the students and the instructor. Using this model, students help a client agency or their clients. Most students learned two important lessons, that their capacity to perform research activities far exceeded their initial expectations, and that the utility or necessity of learning research methods was greater than they might have initially believed. Course evaluations indicated that the approach provided a context and motivation for learning as well as demonstrating the practical application of research principles.

Rodrick and Dickmeyer (2002) incorporated a capstone research experience into the communications curriculum to help students find relevance and

ownership during the research process. Students learned to appreciate that research is, and always will be, a part of their lives. Instead of viewing a research project as a hoop through which to jump, they planned for it and were excited about it. The downside of the approach is that the projects are faculty-intensive and it may be difficult to provide enough faculty to sufficiently mentor and supervise students.

Design

Research methods are an important content area to include in probably any field, as these examples have served to illustrate. It is also clear from these examples that there are many approaches which might be used to teach research methods, but those that seem to be most effective are those which emphasize hands-on projects. Among those projects identified as being helpful are critiquing articles and writing grant proposals, components of the method used in the present study, which used a quasi-experimental single-subject pretest-posttest design. The study investigated the effectiveness of an approach to teaching an advanced research class by comparing male and female students' test scores on a test of research fundamentals before and after the course. The four classes that were the focus of this study were offered in the fall 2001, spring and fall 2002, and spring 2003 terms under the same instructor.

Subjects

There were 51 participants for whom there was complete information, comprising 31 females (61%) and 20 males (39%), almost all pursuing doctorates in educational administration or higher education. Most of the students are public school or college, teachers or administrators.

Course

All sections incorporated article critiques (based on an instrument from Wilson and Onwuegbuzie), a

critique-based exam, and an oral presentation of a grant application completed by the student. The purpose of the critiques and grant application were to provide the students with opportunities to apply in some depth the research knowledge that they had acquired from their basic research courses (The most recent syllabus for this course, for Fall 2003, is appended.).

For the initial fall term, students were expected to present three article critiques, basing their comments on the Wilson and Onwuegbuzie instrument and emphasizing specific components indicated by the instructor, including the introduction, literature review, method, and other fundamental features of a research study. The class was invited to join the instructor in quizzing the presenters on their materials and adding commentary to the discussion. The midterm exam comprised another article to critique, but during class time rather than outside of class. The students initially did very well with these critiques; therefore, the required number was reduced to two for subsequent classes.

After the midterm, the students focused on grant proposals. The task included determining a project and then finding a funding agency that would have an interest in funding that kind of a project. This project required a considerable amount of research on the part of the students so that they were apprised of this responsibility the first day of class. They were encouraged to investigate funding opportunities either through the materials distributed in class; through library resources; through principals, superintendents and other supervisory personnel; through the internet; and/or through other resources or personnel whom they might have located. One of the students, who worked as a grant-proposal-writing specialist, volunteered to talk to the class about proposal writing. The positive response to her presentation led to an invitation to the Director of the Office of Research and Sponsored Programs to present on the same topic in the spring. His presentation was so well received that he was asked

to return in subsequent semesters, which he has done. He has continued to provide guidance to the classes as to how to pursue grant funding.

The rationale for requiring the completion of grant applications rather than research proposals is that most grant applications require essentially the same information as that of research proposals although the formatting may be considerably different. Nevertheless, it is a very practical experience for the students, and still provides an opportunity to implement their research knowledge. The students are generally enthusiastic about the project and many of them actually submit the completed application, even though it is not required. During one term, one-fourth of the students were able to report that their proposals were funded; a third of the class had funded proposals the following semester.

Results

While having a funded proposal is exciting, there is also the content side of the course to consider. To measure the students' progress in this area, multiple-choice pretests and posttests on fundamental research topics were given. The items were developed from a popular research textbook to insure that there would be variance in the test scores as well as content validity. A thirty-item posttest yielded a Cronbach's alpha of 0.63 as an indicator of internal reliability. Since there were no initial differences in the pretest scores as to sex, a two-sample t-test was run to compare the pretest and posttest scores (Hintze, 2001). The assumptions of normality and homoscedasticity were verified by the Omnibus Normality of Residuals and Modified-Levene Equal-Variance tests, but random selection was not possible since students cannot be randomly assigned to these classes. However, there were no obvious demographic differences among the students to suggest that they might be substantially biased compared to other graduate statistics classes in state-supported colleges or universities in the mid-south region. No control group was possible since all

sections of the course were taught by the same instructor. The t-test indicated that the null hypothesis of no statistically significant difference between the mean males' and females' posttest scores could not be rejected at the 0.05 level [$t(1,49) = 0.0079$, $p = 0.99$]. The effect size, $d = 0.002$, was negligible (Cohen). The Mann-Whitney U test agreed ($Z = 0.53$, $p = 0.60$). It is concluded, then, that there were no practical differences in the test scores in these graduate research classes, suggesting that there were no particular performance differences between the males and females.

Discussion

Critiquing the articles and applying the knowledge gained provided an opportunity for growth in understanding as well as motivation to continue working in research venues. The hands-on, activity-based approach received numerous favorable comments from the students on their final evaluation forms, indicating their satisfaction with the activities.

Implications

One adjustment to the class for the Fall 2002 term was the addition of a requirement to find exemplars of various research proposal components. This activity was added because not all of the articles that were critiqued were necessarily exemplary in all, or even some, respects. By searching for particularly good examples of these components, the students began to evaluate the literature and more fully realized the purpose for critiquing papers and becoming critical consumers of published research, as well as better researchers themselves.

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Two-Sample Test Report

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Variable Pretest

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Sex2=0	31	9.354838	2.168692	0.3895086	8.559356	10.15032
Sex2=1	20	9.35	2.058998	0.460406	8.386359	10.31364

Note: T-alpha (Sex2=0) = 2.0423, T-alpha (Sex2=1) = 2.0930

Confidence-Limits of Difference Section

Variance Assumption	DF	Mean Difference	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Equal	49	4.83871E-03	2.126829	0.6099889	-1.22098	1.230657
Unequal	42.23	4.83871E-03	2.990435	0.6030677	-1.212005	1.221682

Note: T-alpha (Equal) = 2.0096, T-alpha (Unequal) = 2.0178

Equal-Variance T-Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	0.0079	0.993703	Accept Ho	0.050007	0.010002
Difference < 0	0.0079	0.503148	Accept Ho	0.049198	0.009796
Difference > 0	0.0079	0.496852	Accept Ho	0.050812	0.010208

Difference: (Sex2=0)-(Sex2=1)

Aspin-Welch Unequal-Variance Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	0.0080	0.993636	Accept Ho	0.050007	0.010002
Difference < 0	0.0080	0.503182	Accept Ho	0.049191	0.009795
Difference > 0	0.0080	0.496818	Accept Ho	0.050820	0.010209

Difference: (Sex2=0)-(Sex2=1)

Tests of Assumptions Section

Assumption	Value	Probability	Decision(5%)
Skewness Normality (Sex2=0)	-1.6298	0.103141	Cannot reject normality
Kurtosis Normality (Sex2=0)	0.5737	0.566147	Cannot reject normality
Omnibus Normality (Sex2=0)	2.9855	0.224758	Cannot reject normality
Skewness Normality (Sex2=1)	1.3614	0.173378	Cannot reject normality
Kurtosis Normality (Sex2=1)	0.3728	0.709266	Cannot reject normality
Omnibus Normality (Sex2=1)	1.9925	0.369262	Cannot reject normality
Variance-Ratio Equal-Variance Test	1.1094	0.804458	Cannot reject equal variances
Modified-Levene Equal-Variance Test	0.0218	0.883325	Cannot reject equal variances

Two-Sample Test Report

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Variable	Pretest

Median Statistics

Variable	Count	Median	95% LCL of Mean	95% UCL of Mean
Sex2=0	31	10	9	11
Sex2=1	20	9	8	10

Mann-Whitney U or Wilcoxon Rank-Sum Test for Difference in Medians

Variable	Mann Whitney U	W Sum Ranks	Mean of W	Std Dev of W
Sex2=0	337	833	806	51.2137
Sex2=1	283	493	520	51.2137

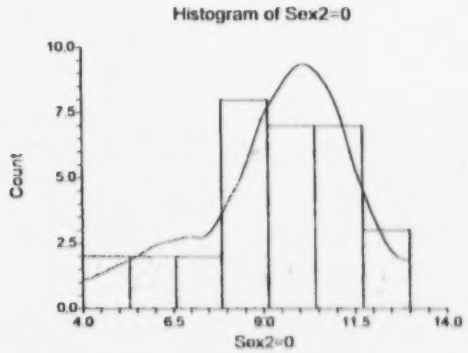
Number Sets of Ties = 8, Multiplicity Factor = 3150

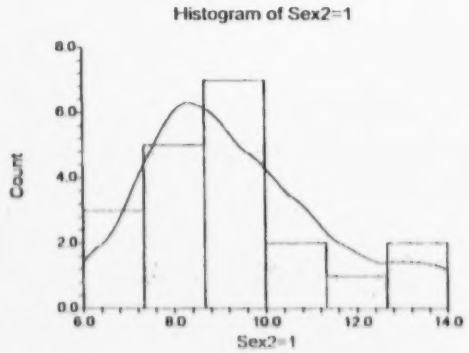
	Exact Probability		Approximation Without Correction			Approximation With Correction		
Alternative Hypothesis	Prob Level	Decision (5%)	Z-Value	Prob Level	Decision (5%)	Z-Value	Prob Level	Decision (5%)
Diff<>0			-0.5272	0.598053	Accept Ho	-0.5174	0.604849	Accept Ho
Diff<0			-0.5272	0.700974	Accept Ho	-0.5370	0.704354	Accept Ho
Diff>0			-0.5272	0.299026	Accept Ho	-0.5174	0.302425	Accept Ho

Kolmogorov-Smirnov Test For Different Distributions

Alternative Hypothesis	Dmn Criterion Value	Reject Ho if Greater Than	Test Alpha Level	Decision (Test Alpha)	Prob Level
D(1)<>D(2)	0.148387	0.3700	.050	Accept Ho	0.9064
D(1)<D(2)	0.079032	0.3700	.025	Accept Ho	
D(1)>D(2)	0.148387	0.3700	.025	Accept Ho	

Plots Section





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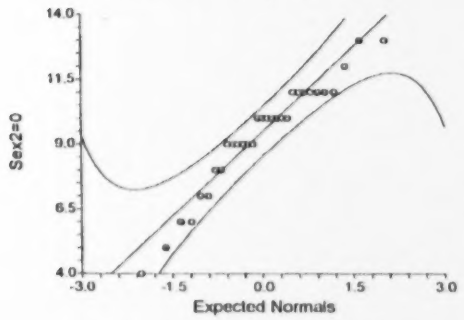
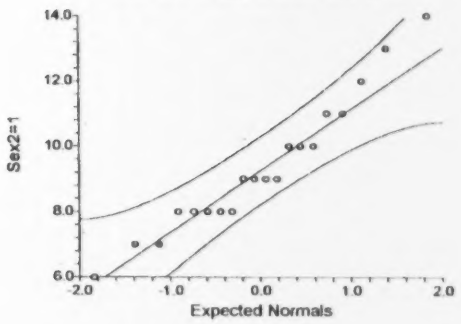
Variable Pretest

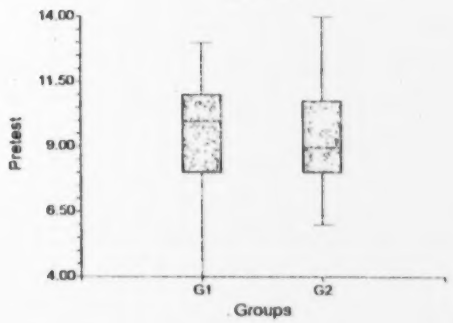
Normal Probability Plot of Sex2=0



Normal Probability Plot of Sex2=1



Box Plot



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Variable Posttest

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Sex2=0	31	9.83871	2.310797	0.4150315	8.991102	10.68632
Sex2=1	20	9.45	1.731291	0.3871284	8.63973	10.26027

Note: T-alpha (Sex2=0) = 2.0423, T-alpha (Sex2=1) = 2.0930

Confidence-Limits of Difference Section

Variance Assumption	DF	Mean Difference	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Equal	49	0.3887097	2.105113	0.6037605	-0.8245924	1.602012
Unequal	47.79	0.3887097	2.887413	0.5675558	-0.7525667	1.529986

Note: T-alpha (Equal) = 2.0096, T-alpha (Unequal) = 2.0109

Equal-Variance T-Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	0.6438	0.522698	Accept Ho	0.096757	0.026076
Difference < 0	0.6438	0.738651	Accept Ho	0.011308	0.001575
Difference > 0	0.6438	0.261349	Accept Ho	0.156272	0.044558

Difference: (Sex2=0)-(Sex2=1)

Aspin-Welch Unequal-Variance Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	0.6849	0.496726	Accept Ho	0.102996	0.028394
Difference < 0	0.6849	0.751637	Accept Ho	0.010166	0.001384
Difference > 0	0.6849	0.248363	Accept Ho	0.166114	0.048397

Difference: (Sex2=0)-(Sex2=1)

Tests of Assumptions Section

Assumption	Value	Probability	Decision(5%)
Skewness Normality (Sex2=0)	-0.2136	0.830830	Cannot reject normality
Kurtosis Normality (Sex2=0)	0.9358	0.349388	Cannot reject normality
Omnibus Normality (Sex2=0)	0.9213	0.630867	Cannot reject normality
Skewness Normality (Sex2=1)	-0.0867	0.930948	Cannot reject normality
Kurtosis Normality (Sex2=1)	0.2462	0.805528	Cannot reject normality
Omnibus Normality (Sex2=1)	0.0681	0.966512	Cannot reject normality
Variance-Ratio Equal-Variance Test	1.7815	0.171474	Cannot reject equal variances
Modified-Levene Equal-Variance Test	0.8474	0.361791	Cannot reject equal variances

Two-Sample Test Report

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Variable Posttest

Median Statistics

Variable	Count	Median	95% LCL of Mean	95% UCL of Mean
Sex2=0	31	10	9	11
Sex2=1	20	9.5	9	10

Mann-Whitney U or Wilcoxon Rank-Sum Test for Difference in Medians

Variable	Mann Whitney U	W Sum Ranks	Mean of W	Std Dev of W
Sex2=0	341.5	837.5	806	51.05441
Sex2=1	278.5	488.5	520	51.05441

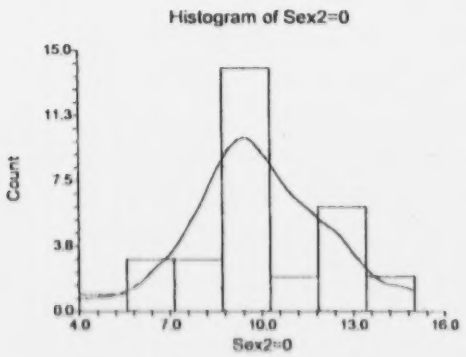
Number Sets of Ties = 8, Multiplicity Factor = 3954

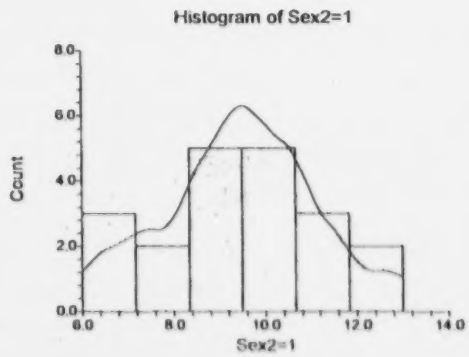
Alternative Hypothesis	Exact Probability Prob Level	Exact Probability Decision (5%)	Approximation Without Correction Z-Value	Approximation Without Correction Prob Level	Approximation Without Correction Decision (5%)	Approximation With Correction Z-Value	Approximation With Correction Prob Level	Approximation With Correction Decision (5%)
Diff<>0			-0.6170	0.537242	Accept Ho	-0.6072	0.543721	Accept Ho
Diff<0			-0.6170	0.731379	Accept Ho	-0.6268	0.734599	Accept Ho
Diff>0			-0.6170	0.268621	Accept Ho	-0.6072	0.271861	Accept Ho

Kolmogorov-Smirnov Test For Different Distributions

Alternative Hypothesis	Dmn Criterion Value	Reject Ho if Greater Than	Test Alpha Level	Decision (Test Alpha)	Prob Level
D(1)<>D(2)	0.158065	0.3700	.050	Accept Ho	0.8615
D(1)<D(2)	0.032258	0.3700	.025	Accept Ho	
D(1)>D(2)	0.158065	0.3700	.025	Accept Ho	

Plots Section





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Two-Sample Test Report

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Variable	Posttest

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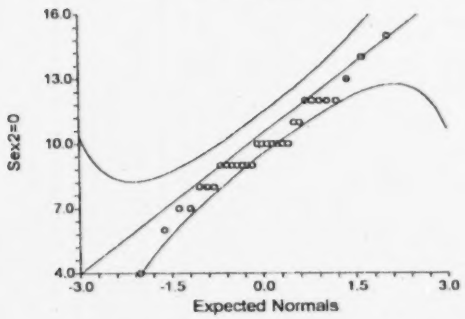

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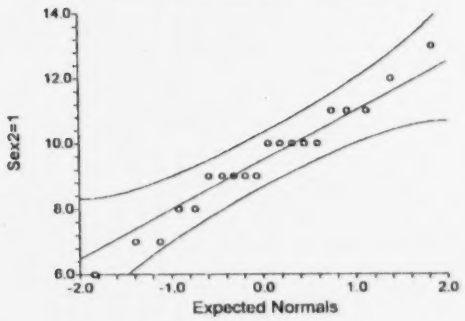
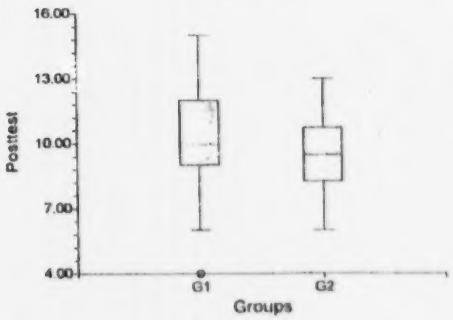


Box Plot



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UNIVERSITY OF ARKANSAS AT LITTLE ROCK
College of Education
Department of Educational Leadership
(revised 8/14/03)

I.	Course Prefix and Number	EDFN 8306
II.	Course Title	Advanced Research Methods and Techniques
III.	Credit	3 hours
IV.	Semester and Year	Fall, 2003
V.	Instructor	Rob Kennedy, Ph.D., Professor of Educational Foundations and Higher Education
VI.	Office Location	Dickinson 419B
VII.	Office Hours	By appointment
VIII.	Telephone	501-xxx-xxxx (UALR), 501-xxx-xxxx (home), rlkennedy@ualr.edu (e-mail)

IX. Course Description

Quantitative, qualitative research methods, techniques used in education; includes nature of scientific inquiry; planning, evaluation of educational research; sampling, measurement; commonly used research designs, methods, techniques.

The Conceptual Framework for programs in the College of Education is Leadership in Learning through Communication, Specialized Expertise, and Professional Development.

Communication: Students will use the expertise that they gain from Educational Foundations courses to communicate with a wide variety of audiences. They will know how to translate and evaluate current research trends and assessment practices in education. Based on their skills, these students will effectively advocate for best practices in educational improvement and thoughtful change in other work settings.

Specialized Expertise: Students will gain essential tools of their discipline in order to positively effect and measure change in students, schools, and organizations. They will gain knowledge of learning, diverse learning styles and instructional needs, lifespan growth and development, educational and psychological principles, assessment, and research.

Professional Development: Students will view themselves as professionals who are committeed to lifelong learning. They will strive to incorporate the latest in educational research, assessment, and technology into their work settings. They will be committed to data-based problem solving, to the value of inquiry in their disciplines, and to continually updating their knowledge toward teaching and learning.

X. Course Objectives

The objective is for you to become equipped to plan and implement research projects, including the dissertation. More specifically, you will be given exercises to help you:

Comprehend and evaluate written reports of research in education and related areas of inquiry. (Arkansas Licensure Principles 1.1.1, 1.2.2, 1.3.1, 1.3.2, 1.3.4, 1.3.5, 3.1.3, 3.1.4, 5.1.1, 5.1.2, 5.2.1, 5.3.1, 5.3.2, Specialized Expertise, Professional Development)

Analyze information through reviewing research literature. (Arkansas Licensure Principles 1.1.1, 1.2.2, 1.3.1, 1.3.2, 1.3.4, 1.3.5, 3.1.3, 3.1.4, 5.1.1, 5.1.2, 5.2.1, 5.3.1, 5.3.2, Specialized Expertise, Professional Development)

Become familiar with the fundamentals of the research process by identifying research questions and planning research projects through writing grant proposals. (Arkansas Licensure Principles 1.1.1, 1.2.2, 1.3.1, 1.3.2, 1.3.4, 1.3.5, 3.1.3, 3.1.4, 5.1.1, 5.1.2, 5.2.1, 5.3.1, 5.3.2, Specialized Expertise, Professional Development)

Become familiar with the fundamentals of being consumers of research through such procedures as locating research materials; reading them for knowledge, understanding, application, analysis, and synthesis; and evaluating them on the basis of their development, execution, and delivery. (Arkansas Licensure Principles 1.1.1, 1.2.2, 1.3.1, 1.3.2, 1.3.4, 1.3.5, 2.1.6, 2.2.5, 2.3.8, 3.1.3, 3.1.4, 5.1.1, 5.1.2, 5.2.1, 5.3.1, 5.3.2, Communication, Specialized Expertise, Professional Development)

Develop leadership and research skills through learning independently and making decisions based on this research. (Arkansas Licensure Principles 1.1.1, 1.2.2, 1.3.1, 1.3.2, 1.3.4, 1.3.5, 2.1.6, 2.2.5, 2.3.8, 3.1.3, 3.1.4, 5.1.1, 5.1.2, 5.2.1, 5.3.1, 5.3.2, Communication, Specialized Expertise, Professional Development)

XI. Texts, Readings, and Instructional Resources

Required Text

There is no one required text for the course. Rather, you are expected to utilize a variety of informational resources, with an emphasis on web-based sites.

Supplemental Reading

American Psychological Association. (2001). Publication manual of the American Psychological Association (5th ed.). Washington, D.C.: Author.

XII. Assignments, Evaluation Procedures, and Grading Policy

Course Requirements

Students who demonstrate a commitment to the course through participation, reading, studying, and otherwise applying themselves to the course will benefit in direct proportion to that effort. If you view your coursework as an extracurricular activity that you pursue if you have some extra time, then expect to feel as though you learned little or nothing upon completing the class. If the course is to be a worthwhile experience for you, then you need to invest in it. In other words, "You get out of it what you put into it."

Evaluation Techniques/Concepts Used for Grading

Participation in Signing up for the Class List and Web Crossing (5%)
Participation in Article Reviews (10%)
Participation in Finding and Presenting Exemplars (10%)
Mid-term Examination (20%)
Final Examination (20%)
Grant Application (15%)
Knowledge (15%)
Bibliographic Annotation (5%)

Participation in Signing up for the Class List and Web Crossing (5%)

It is important for you to further participate by signing up for the electronic class (See AdvResearchSignup.pdf) and Web Crossing (See WebCrossing.pdf) so that you can benefit from the additional information available that way. Also, if I need to share updates with you about class closings, for inclement weather or other reason, then you will be able to get that information quickly, so please check your email regularly. Signing up for the class list and

Web Crossing is important so you will be expected to do this within the first week of class to receive full credit for participation in this area. After a week, one percent of the five percent credit will be deducted for each day you are late.

It is important also that you keep up with your email regularly and certainly at least daily. If the class is to carry on a discussion and has questions about something that you posted, then you will need to check regularly to see if you need to respond to those questions. In addition, when I try to contact you and am kept waiting for days at a time, then you are taking my time away from other work that I need to do for the class. Although I would like for you to check your email daily, I do realize that there are circumstances in which you may be taken away from computer access from time to time. Therefore, I will not assess a penalty unless I receive no response from you over a 48-hour period, not including Saturday and Sunday. One percent of the five percent credit will be deducted for the each 48-hour period in which you do not respond to my messages. If you need to be away from your computer access for an extended period of time, simply let me know. That will at least give me an opportunity to contact you before you are away.

Participation in Article Reviews (10%)

Each week, you will be assigned two articles, available through the web, to evaluate. You will be expected to evaluate each, but will present your findings for only the ones assigned. You will also need to participate in the discussions of the other articles, but as part of the class rather than formally. You may work individually on your assigned review, or as part of a group, but each person is expected to contribute to the discussion of the assigned paper. Lack of participation or clearly inadequate preparation will yield no credit.

The format for the evaluations is provided in the file PaperEvaluation.pdf. The terminology comes from your basic research and statistics classes which are prerequisites for this course. If you do not remember what a given term means, then it is your responsibility to demonstrate your research skills by looking up the term, either through the web, in a text, or via another source. Saying that you do not know what something means in lieu of providing an answer will be considered as evidence that you are clearly inadequately prepared, as noted in the previous paragraph. Since preparing for presenting/teaching is an effective form of hands-on learning, this activity should increase the amount of learning taking place. Note that it is common to use the demos and examples that I provide as a template of sorts to do the article reviews. Responses that address additional areas, as listed in the PaperEvaluation.pdf file, will be looked upon more favorably than critiques that merely reproduce what I did, but with the current article's information inserted.

Please let me know if you need to miss a class. Skipping a class to avoid taking responsibility for the week's assignment not only detracts from your own learning, but also deprives your peers of the richer discussion that your preparation could have provided. Unexcused absences will result in no credit for that assignment.

Participation in Finding and Presenting Exemplars (10%)

Some of the articles that will be critiqued in class will be good, even exemplary. Others will have deficiencies. So that good examples can be studied regularly, you will need to find and present three "good" examples of assigned components:

1. **Title and Abstract**
2. **Introduction and Statement of the problem/Research hypothesis**
3. **Review of the literature**
4. **Research design/Evaluation**
5. **Threats to internal and external validity**
6. **Delimitations/Limitations**
7. **Subjects and Population**
8. **Instruments/Measures and Data collection procedures**
9. **Data analysis and Findings**
10. **Discussion**

More information about each of these components can be found in the PaperEvaluation.pdf file. More information about this assignment can be found in the Exemplars.pdf file.

Mid-term Examination (20%)

The mid-term exam will comprise the evaluation of another article, just as done in class. The evaluation format will be the same, so the practice you receive from class should prepare you for this test. The exam will require everything from merely having knowledge to the ability to apply information, synthesize, and evaluate. The test is to help encourage you to learn the vocabulary and become familiar with various concepts of research.

Final Examination (20%)

The final exam will be similar to the mid-term exam, other than I will have higher expectations of your ability to evaluate an article, since you will have had considerably more experience by then, in critiquing and discussing papers.

Grant Application (20%)

The opportunity to apply what you have learned in a real-life situation is important to your learning. Therefore, you are expected to write a grant proposal to a funding agency. The funding agency for your proposal will be a source of your choosing. (See, for examples, the files FundingAgency.pdf and Topics.pdf.) You will be expected to locate the funding source, request and obtain a grant application form from it, and complete it for submission to your instructor. A copy of the application form and its instructions, or the URL for the web page with this information, must accompany the copy submitted to the instructor to enable accurate assessment. You are encouraged to submit the application to the funding agency, although this is not required. However, you should not pursue this step unless you have the time, resources, and commitment to administer the grant since a substantial number of grants have been awarded to students in previous classes and you may become one of them! The funder will expect you to carry out the project and provide it with a final report. If you do follow through, please notify the instructor when you submit the document as well as provide documentation of the outcome. The report of your grant application should be posted to the class list also, so that all can share.

In evaluating this grant proposal, I will be looking for the required components (those required by the funding agency), as well as for the overall quality of the proposal in terms of its professionalism. Proper grammar, spelling, and punctuation, typing or word processing, and other aesthetic considerations are expected to be a part of your effort. The proposal should not only look good, but should read well. Proposals which do not meet these standards of professionalism will be considered unacceptable. You will need to submit at least a synopsis of your proposal on paper for the benefit of the class, but please do not use covers or other binders. Simply paper clip the pages together to facilitate their being taken apart for review. At least one other person, preferably more, should review your proposal before it is submitted for evaluation, to check for readability and completeness. If the paper is satisfactory, you will receive full credit. If it is not, then I will tell you what you need to do to complete or improve it, if there is time to do so. Please do not hand in proposals that are "rough drafts". They will simply be returned without being graded. You should feel that your application is complete before submitting it. Handing in the proposal the last night of class or during finals week means there is *not* time for revision. Also, the later in the course that your proposal is submitted, the greater expectation I will have of your ability, since you will have had increasingly more practice evaluating research.

The application should be submitted electronically to the class discussion list, edfn830601@ualr.edu, so that all may benefit from your contribution. If there is some proprietary information that cannot be posted, just indicate that for the appropriate sections.

Knowledge (15%)

This component of your grade is an opportunity for you to design a path for your own learning about research and your assessment of that learning. In addition, the more that the individual class members know and can contribute to discussions, the richer the class experience will be for everyone. Therefore, I am asking you to design a way for you to learn that suits you best, and to

assess your performance following this approach. When you have a plan for how you are going to learn more about research and how you expect to measure your progress, then email it to me by the middle of September. When we agree on a suitable proposal, then you can implement it and show me your results by the end of the semester.

Bibliographic Annotation (5%)

The specifications for the Bibliographic Annotation are described in the file BibAnnotation.pdf. Bibliographic annotations allow students to share with other researchers (future Advanced Research students) similar to the manner in which researchers share information through formal publications. The student should investigate sources found useful in developing understanding for the course, that is, research- or grant-type resources as opposed to resources related specifically to the topic being investigated. Only one annotation is required. Preferably the source will be one that you found personally useful.

Grading scale:

90-100	A
80-89	B
70-79	C
60-69	D
Below 60	F

XIII. Class Policies

Again, "You get out of it what you put into it." These words have greater meaning in this class in which the discussion contributes highly to the learning of each individual. It is important that each person be prepared to contribute to these discussions. Students who demonstrate dedication to the course through attendance, participation, reading, studying, and otherwise applying themselves to the course will benefit in direct proportion to that effort. Practicing with the applications is necessary for developing your skill with, and understanding of, research. Just as playing a piano requires much practice to hone ability and interpretation, so does the skill of doing and evaluating research. If you want to know the hows and whys of research, then you need to dig into the subject. Create your own problems and investigate them. Merely doing the assignments will enable you to get through the course, but true understanding will always require greater commitment. As an advanced student of education, you must decide if you want to add to your credentials the word "leader".

It is natural to wish to converse during class. However, if you must speak, please do so quietly to avoid distracting the other students who are also paying for the instruction they are trying to hear. If conversing with your friends about unrelated topics is more important to you than listening to this instruction, then please step into the hallway to have the desired discussion.

Additionally, note that because the lab in which we will be working contains a large amount of very expensive equipment, please do not bring in food or drinks. This practice can be messy and distracting to other students. Even small candies or other wrapped items create noise when unwrapped or while you are digging in the package. I have found food items and drink cans left after class. You can imagine how much this situation would reflect on your professionalism if you were the one leaving such debris. If you need to eat during class time, then you are welcome to visit the break lounge near the elevators.

If you must be available for communication, please show other class members the courtesy of setting your cellular phone, pager, beeper, or other device on vibrate so that it does not annoy or distract the other students in the class should it activate. I'm sure that everyone enjoys hearing "Fur Elise" or the "Arkansas Razorback National Anthem", but usually not when concentrating on the subject at hand. If you do need to take the call, please step out into the hallway to speak.

XIV. Class Schedule

August 28	Introduction, pretests, picture
September 4	Demonstration of article review and component exemplars. Sign up for article presentations, component exemplars.
September 11	Article reviews Component exemplars
September 18	Article reviews Component exemplars
September 25	Article reviews Component exemplars
October 2	Article reviews Component exemplars
October 9	Article reviews Component exemplars
October 16	Article reviews Component exemplars
October 23	Mid-term exam, evaluation
October 30	Grant application writing presentation by the Director of Research and Sponsored Programs, UALR Sign up for grant application presentations.
November 6	Mid-South Educational Research Association (MSERA) meeting. No class.
November 13	Grant application presentations
November 20	Grant application presentations
November 27	Thanksgiving. No class.
December 4	Grant application presentations
December 16	6:00 - 8:00 p.m. Final, evaluation, posttest.

XV. Topical Outline

The topics below will be among those addressed through the article reviews:
The Nature of Educational Research
Statistical Techniques
Selecting a Sample
Collecting Research Data with Tests and Self-Report Measures
Collecting Research Data with Questionnaires and Interviews
Collecting Research Data through Observation and Content Analysis
Descriptive and Causal-Comparative Research Designs
Correlational Research Designs
Experimental Designs

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